

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

WINDBREAK RENOVATION

(Acre)

CODE 650

DEFINITION

Widening, partial replanting, removing, and replacing selected trees and shrubs to improve an existing .

PURPOSE

To improve existing field, farmstead, or feedlot windbreaks.

CONDITIONS WHERE PRACTICE APPLIES

In any windbreak that is no longer functioning or developing satisfactorily because of poor design, overcrowding, dead or dying trees, insufficient width, or extreme competition from sod or weeds.

SPECIFICATIONS

The renovation of windbreaks may include several operations, depending on existing conditions. All renovation practices will fall under one or more of the following specifications. Livestock must be excluded in all cases.

Underplanting

1. Plant eastern redcedar or Rocky Mountain juniper¹ approximately midway between the rows of existing windbreak where any one of the following conditions exists.

- a. Where trees and shrubs in two or more adjacent rows are scattered and a majority are dead or are in poor condition.
- b. Where the windward rows are inadequate for significantly reducing low-level winds or controlling drifting snow.
- c. Where the leeward rows need to be improved for wildlife purposes.
- d. Where the current windbreak width or proximity to county roads or boundary fences does not allow for the planting of new rows on the outside.

2. Trees may need supplemental water because of dry soil conditions within the windbreak. See Farmstead and Feedlot Windbreak (380) for supplemental watering guidelines.
3. Trees may be established in a shallow furrow 18 to 24 inches wide where grass and weeds are sparse or sod is native grass. For seedlings that are spot planted by hand, scalp an area in a circle with a minimum diameter of 24 inches. When sod is brome grass, a 4-foot strip must be prepared mechanically or chemically² to eliminate competition before planting.

¹ Rocky Mountain juniper is not recommended for vegetative zone IV.

WINDBREAK RENOVATION (650-2 Statewide

4. Spacing within rows should be 6 to 12 feet.
5. Where natural regeneration of eastern redcedar is present, thinning as described in E-1, may be needed. Where natural regeneration is spotty, new plantings should be used to supplement regeneration.

Supplemental or Enlargement Plantings

1. Cultivated plantings will be made in accordance with current specifications in the FARMSTEAD AND FEEDLOT WINDBREAK Standard (380), with the following exceptions:
 - a. Supplemental or enlargement plantings should not be made closer than 20 feet from large spreading trees, such as Siberian elm, eastern cottonwood, or silver maple.
 - b. Supplemental or enlargement plantings with small and medium sized trees or shrubs¹ should not be closer than 15 feet.
 - c. Root pruning should be encouraged between the supplemental planting and the old windbreak.
 - d. Eastern redcedar or Rocky Mountain juniper¹ are the preferred species for use in supplemental plantings on the north and west sides of existing windbreaks where soils are suitable. New plantings on the south and east sides of existing windbreaks can be of any adapted tree or shrub (see Field Office Technical Guide, Section II-Windbreak Interpretations).

² CAUTION: Herbicides, their rates, and time and method of application may be found in the current Nebraska Extension circular "Herbicide Use in Nebraska." If you use pesticides, apply them only when needed and handle them with care. Follow the directions, and heed all precautions on the container label. If the pesticides are not handled or applied properly, or if unused portions are disposed of improperly, they may be injurious to humans, animals, fish and wildlife, desirable plants, honey bees, and other pollinating insects, they may contaminate water supplies, and degrade the environment. Apply only in accordance with federal, state, and/or local laws.

2. Scalp plantings will be made in accordance with specifications in the FARMSTEAD AND FEEDLOT WINDBREAK Standard (380), with the following exceptions (assuming original belt was scalp-planted and contains all conifers):
 - a. Plantings should not be made closer than 15 feet from existing plantings if eastern redcedar or Rocky Mountain juniper is used. Eastern redcedar or Rocky Mountain juniper¹ are the preferred species for use in supplemental plantings on the north or west sides of existing windbreaks where soil permits.
 - b. Plantings should not be made closer than 20 feet from existing plantings if a pine, or large spreading hardwood tree species, is used.

Removal and Replacement of Dead and Dying Rows

1. Designate the perimeter of the area to be cleared or killed with marking point, flagging or other methods.
2. All trees, shrubs, or other debris from a cleared area which interfere with cultivation operations or planting will be removed from the site or disposed of within the site prior to planting. Using ripper teeth on a dozer is recommended to remove all roots, disk afterwards to firm ground prior to planting.
3. If the debris is to be burned, it must be piled far enough away from the planting to prevent damage to the trees. All burning must comply with local burning regulations.
4. Prepare a site by acceptable methods in the FARMSTEAD AND FEEDLOT WINDBREAK Standard (380), and plant trees or shrubs on the prepared site.
5. Conifers are best suited for planting in this type of windbreak renovation; however, any tree or shrub species suited to the soil (see Field Office Tech Guide, Section II - Windbreak Interpretations).
6. Where only a portion of the interior of a windbreak is removed, replant the area with one row less than the number of rows removed.

Release of Sod-Bound Trees

Applicable where at least 70 percent stand exists and where heavy sod has curtailed growth.

If possible, plow shallow or cultivate no deeper than 3 inches between the rows. Do not plow or cultivate closer than 1 foot from the base of the trees. The optimum time is midsummer or early fall. It is also permissible to use appropriate herbicides to control grasses if they are applied according to label information.²

Polypropylene fabric mulch can be used on existing trees. Sod should be killed first. See MULCHING Specifications (484) for installation procedures on renovation sites.

Thinning

Thinning can be the removal or killing of certain trees within the row or removal or killing of entire rows to improve the growth of adjacent rows.

1. Trees and/or shrubs may be thinned within the row not to exceed the current recommended maximums for in-the-row spacing by more than 30 percent.
2. Marking of trees and shrubs or entire rows to be removed must be done prior to any removal operations.
3. Removal may be by any means that does not contribute to erosion or damage trees and/or shrubs that will remain. Disposal must be in compliance with county and state regulations.
4. An effort will be made to retain those trees, shrubs, or rows that have the most vigor. Removing or killing entire rows of broadleaf trees can improve the growth of adjacent rows of evergreens which have been suppressed. Broadleaf rows to favor when overtopping or crowding occurs are common hackberry, green ash, honeylocust, bur oak, and black walnut. Conifer rows with pine or cedar should be favored if they are still in fair condition. Removing or killing adjacent overtopping deciduous rows would be recommended.
5. The removal of trees by severing at the base may cause sprouting. To control sprouting where it is not wanted, apply an appropriate herbicide.²

6. On windbreaks over 100 feet in width, another alternative would be to remove one half the width and replant a new windbreak in that area. Retain the remaining older windbreak portion for present wind and snow control. Plan to replant this area in 15-20 years.

Managing Natural Regeneration

In some windbreaks there may be a sufficient number of seedlings in the understory that could be managed to replace the overstory trees. Tree species to favor in managing natural regeneration are hackberry, eastern redcedar, bur oak, green ash, and honeylocust.

1. Thinning of the natural regeneration may be needed to provide growing space for the better trees. Thinning can be done in rows to conform to the original windbreak design or it can be managed similar to a natural woodland.
2. Old overstory trees may need to be killed or removed to allow additional sunlight to reach natural regeneration.

Corrective Pruning of Deciduous Trees and Shrubs

1. Prune branches from adjacent deciduous trees which may interfere with the normal growth of any evergreen species. Make cuts just outside the branch collar. Refer to the WOODLAND IMPROVEMENT Standard and Specification (666) and the diagram on page 650-7.
2. Prune deciduous shrub rows which have become leggy (containing sparse or dead branches) and where a more dense shrub row is desirable. Cut shrubs back to 4 to 8 inches above ground during the dormant season.

Root Pruning

Root pruning may be needed to prevent crop yield reduction adjacent to the windbreak. Root pruning may be used to prevent competition from adjacent trees when supplemental or enlargement plantings are made.

1. Root plow at the drip line or further from the trees. Cultivation over the root plow furrow is

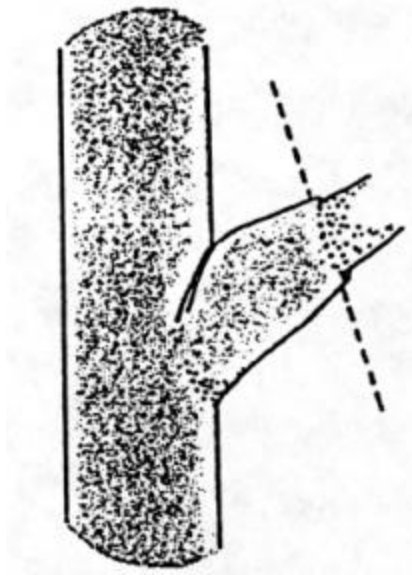
WINDBREAK RENOVATION (650-4 Statewide

necessary to prevent suckering from the severed roots.

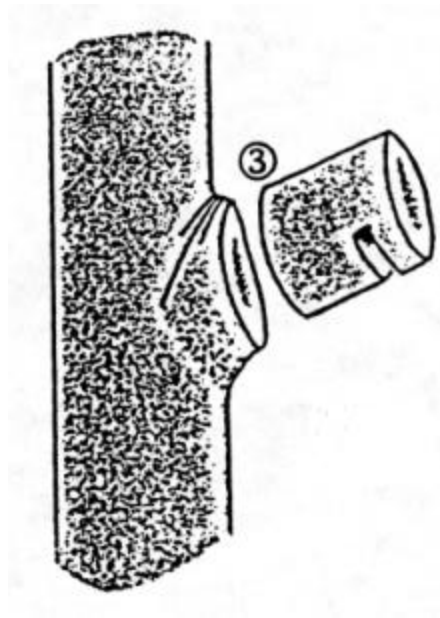
2. Root plow to a depth of 18 to 24 inches. This will normally require two trips over the furrow, plowing 9 to 12 inches with each pass.
3. Repeat root pruning at intervals of 5 to 10 years.
4. Root prune when the trees are dormant if possible.
5. Locate all buried utilities before starting root pruning.
6. Root prune only one side for single row windbreaks.

Pruning a Dead Branch

A dead branch stub that has a collar of live wood should be cut just at the outer edge of the collar (swollen area where one branch meets another).



3. The final cut should be just beyond the branch collar (A).



Pruning a Live Branch

Remove a large limb by making three cuts:

1. Undercut 12" to 24" from the branch collar (A).
2. Make a top cut all the way through the branch, within 1" of the undercut.

